

WHAT IS CLAIMED IS:

1. A mono-layer or multi-layer film, sheet, or coating wherein at least one layer
5 displays a surface microstructure, which layer is a thermoplastic polymeric material and
characterized by fringes, said fringes being non-perforated crater-like peaks which are at
least partially hollow, in a density of 1000 or more per square centimeter.
2. A film, sheet or coating according to claim 1, wherein the fringes have a height
10 (H) in the range of from 40 microns to 1 millimeter.
3. A film, sheet or coating according to claim 1, wherein the fringes have a hollow
depth ratio (•) of 1.3 or lower, as determined by optical surface profilometry.
- 15 4. A film, sheet or coating according to claim 1, wherein the fringes have a hollow
diameter ratio (•) of 1 or lower, as determined by optical surface profilometry.
5. A film, sheet or coating according to claim 1, wherein the fringes have a
Hollowness Index (•) of 100 or lower, as determined by optical surface profilometry.
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6. The film, sheet or coating according to claim 1, wherein the fringes have an
aspect ratio (A) of between 1 and 5.
7. The film, sheet, or coating according to claim 1, wherein the thermoplastic
25 material is cured, irradiated or cross-linked.
8. The film, sheet, or coating according to claim 1, wherein the layer displays a
surface microstructure on both sides.
- 30 9. The film, sheet, or coating according to claim 1, which is a mono-layer film, sheet
or coating.
10. The film, sheet, or coating according to claim 1, which is a multi-layer film, sheet or
coating.

11. The film, sheet, or coating according to claim 10, wherein the surface microstructure is on an outer layer.

5 12. The film, sheet, or coating according to claim 1 which is a multi-layer film, sheet or coating, wherein the surface-structured layer is an interlayer.

10 13. The film, sheet or coating according to claim 10, wherein at least on of the outer layers is a fringed layer and at least one of the inner layers is an oriented film, preferably a biaxially oriented polypropylene film.

14. The film, sheet or coating according to claim 13, wherein at least one of the layers is a foamed layer.

15 15. The film, sheet, or coating according to claim 1, wherein at least one layer is elastic.

16. The film, sheet, or coating according to claim 1, which is oriented.

20 17. The film, sheet, or coating according to claim 1, wherein at least one layer is vapor permeable and liquid impermeable.

18. The film, sheet, or coating according to claim 1 which is printed or imprinted.

25 19. The film, sheet or coating according to claim 1 wherein the surface microstructure has been subjected to a post treatment step selected from the group consisting of treatment with an abrading device, corona treatment, curing, irradiation and crosslinking.

30 20. A composite comprising the film, sheet or coating according to claim 1.

21. The composite according to claim 20 which is a laminate.

22. An article of manufacture comprising a mono-layer or multi-layer film, sheet, or coating according to claim 1.

23. The article of manufacture according to claim 22, which is a glove.

24. The article of manufacture according to claim 22, which is a hygienic product.

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25. The article of manufacture according to claim 22, which is a medicinal collection bag, preferably an ostomy bag.

10 26. The article of manufacture according to claim 22, which is a floor or wall covering product.

27. The article of manufacture according to claim 22 which has a soft, textile-like touch.

15 28. The article of manufacture according to claim 22 which is water repellant.

29. The article article of manufacture according to claim 28 which has anti-skid properties.

20 30. The article of manufacture according to claim 22 which has enhanced carrying, capturing or storing properties.

31. The article of manufacture according to claim 22 which is heat resistant.

25 32. An process for making a film, sheet, or coating according to claim 1, said process comprising

- providing a precursor film, sheet, or coating with a surface characterized by a pattern of peaks and valleys, and
 - subjecting said precursor to mechanical treatment under conditions allowing the
- 30 formation of a fringed surface microstructure.

33. The process according to claim 32, wherein the precursor film, sheet, or coating is formed in a continuous compression molding process and the mechanical treatment

comprises application of a tractive force to said precursor which is applied during release of the film, sheet, or coating from a matrix surface.

34. The process according to claim 32, wherein application of the tractive force
5 comprises peeling the film, sheet, or coating off the matrix surface at a temperature which is at or below the Vicat softening point of the thermoplastic material and at a release angle of between 20 and 170 degrees relative to the matrix surface.

35. The process according to claim 32, wherein the surface is a foam.

10 36. A device comprising a matrix surface and a counter surface, preferably a calander, to make the film, sheet or coating according to claim 1.

37. Use of the film, sheet or coating according to claim 1 to make an article of
15 manufacture having a soft, textile-like touch.

38. Use of the film, sheet or coating according to claim 1 in automotive applications.

39. Use of the film, sheet or coating according to claim 1 to make an article which is
20 water repellant.

40. Use of the film, sheet or coating according to claim 1 for packaging.

41. Use of the film, sheet or coating according to claim 1 in an article with enhanced
25 carrying, capturing or storing properties.

42. Use of the film, sheet or coating according to claim 1 to make an article which has anti-skid properties.

30 43. Use of the film, sheet or coating according to claim 1 to make an article which has enhanced heat resistance.

44. Use of the film, sheet or coating according to claim 1 to make an article which has a matte surface appearance.

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45. Use of the film, sheet or coating according to claim 1 as a filtration medium.

46. Use of a thermoplastic material to make the film, sheet or coating according to
5 claim 1.

47. Use of a thermoplastic material according to claim 46 which is biodegradable,
preferably poly(lactide).

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